

NOTES ON THE BIRDS OF SOUTHEASTERN NORTH  
CAROLINA.

BY EDWARD FLEISHER

DURING the week beginning April 13, 1919, I visited that section of North Carolina lying between Wilmington and the mouth of the Cape Fear River, thirty miles to the south. Throughout this region the soil is sandy, with here and there muddy bottoms in which grow the great bald cypresses and live oaks with their draperies of *Tillandsia* "moss." The coastal region at the mouth of Cape Fear River, and, more particularly, Smith's Island, approach the sub-tropical in both climate and flora. Here such trees as the cabbage palmetto, the magnolia and the prickly ash are found. Many of the Smith's Island palmettos, however, were killed or injured in the cold winter of 1917-1918.

Smith's Island, off the mouth of the Cape Fear River, is roughly in the shape of an arrow, the point of which, Cape Fear, is the southernmost point of North Carolina and at about the latitude of Atlanta, Ga. The flanks of the arrow consist of sandy beaches of a total length of about fifteen miles. In the central part are extensive grassy marshes bordered by dense woods. One end of the beach terminates in a narrow spit of sand separating the ocean from Buzzard's Bay. It is here that the sea birds formerly nested, though I doubt whether they still do so in large numbers, as herds of semi-wild cattle wander over the island and their tracks can be seen in the sand.

On the east side of Cape Fear the sea is gradually cutting into the woods, and the shore presents a wild aspect. The beach is covered with a tangled mass of prostrate and semi-prostrate trees, and the breakers seethe about those still standing. Here and there, lagoons of salt water are bordered and dotted with gaunt trees.

It was on top of one of these trees that I discovered a Roseate Spoonbill (*Ajaja ajaja*), a thorough surprise and the best find of the trip. I had the bird under observation for only two or three minutes, though of course there was no mistaking him after the

first glance. I was rounding a "point o' woods" on the beach early in the morning of April 15 when I caught sight of a great pink bird about 100 yards away. I had barely time to feast my eyes on him through my 8-power binoculars when he discovered me and flapped off, flying directly past me toward the sea, then turning and making for another part of the island. According to Chapman, these birds in the eastern United States, are "confined to the most inaccessible swamps in Florida." However, when I told Captain Willis of the Smith's Island Life Guard Station of my find, he said that he had seen two of these birds "last summer." He could not remember just when, but he gave me a good description of the birds and a circumstantial account of the conditions under which he had seen them. They had impressed him as they were the only large pink birds he had ever seen on the island.

The only herons observed on the island were the Great Blue Heron (*Ardea h. herodias*), the Louisiana Heron (*Hydranassa t. ruficollis*) and the Little Blue Heron (*Florida caerulca*), a few of each; and there were no indications that herons had nested there recently. Although I saw eleven species of Limicolae, it was apparently too early for large flocks like those that occur on Long Island, New York, a few weeks later. Nor did I realize my expectation of meeting the great north-bound army of warblers and other migrants. In fact, with few exceptions the transients observed were those that usually occur in the latitude of New York during the last week in April, *i. e.*, about a week later.

Rivalling Smith's Island in interest for me was my trip to the heronry on Orton Lake. Lying about midway between Wilmington and the mouth of the Cape Fear River is this beautiful body of water with its temples of buttressed cypress trees. The owner of the lake, a typical Southern gentleman, takes great pride in his herons, and I was not at all offended when he told his colored servant, who was to be my guide, not to leave me alone with the birds. I must have been rough-looking in my dusty clothes and knapsack. Accompanied by two servants and the ubiquitous Ford, I was quickly driven to the edge of the lake and then rowed and poled between trees. The heronry, or what I saw of it, consisted of two parts: The Great Blue Herons and some of the

Egrets (*Herodias egretta*) in one place and the smaller herons in another. All except the Snowy Egrets (*Egretta c. candidissima*) were busy with nesting. The young of the Great Blue Herons could be heard calling from the nest in the tops of the taller trees. The Egrets were sitting, and in their part of the lake the little Blue and Louisiana Herons left off their nest-building operations to scold us at our approach. Some of the nests in the small trees about us had their clutches of blue eggs, but as no birds approached the nest near us I was unable to determine to which species the eggs belonged. A conservative estimate of the number of each species seen is the following: Great Blue Heron, 150, Egret, 20, Snowy Egret, 8, Louisiana Heron, 50, Little Blue Heron, 75, Black-crowned Night Heron (*Nycticorax nycticorax naevius*), 1. The actual number of herons in the lake area was probably much greater than these numbers would indicate.

In answer to a question, I was informed that "Dey all goes away in winter, excuse a few of de big ones."

I spent practically all the daylight hours during the week in the field. With the exception of a few light showers one day, the weather was most favorable, though usually very warm.

In the annotated list which follows, I give a conservative estimate of the total number of individuals of each species seen during the week.

**Gavia immer.** LOON. One individual seen in Cape Fear River, April 15.

**Larus argentatus.** HERRING GULL. Three, off shore.

**Larus atricilla.** LAUGHING GULL. Nine of these birds were seen, most of them on the river.

[**Sterna maxima.** ROYAL TERN (?). A large tern seen off shore appeared to be of this species.]

**Sterna antillarum.** LEAST TERN. With the exception of the above, these were the only terns observed. There were about 150 of them on the beaches of Smith's Island, April 14 to 16.

**Rynchops nigra.** BLACK SKIMMER. A compact flock of 24 flew to a mud flat on my approach and were still there, motionless, when I returned an hour later.

**Phalacrocorax auritus,** subsp. DOUBLE-CRESTED CORMORANT. A flock of five in the river on April 14, and another bird on the 17.

**Pelecanus occidentalis.** BROWN PELICAN. The pelicans, I was informed, occur regularly along the Smith's Island shore but rarely go much further north. I saw three flocks of nine, twenty-seven and four birds

respectively. I was talking to Captain Swann of the light house when I saw the twenty-seven. He remarked that he had never seen so large a flock before. The birds were all flying south, toward the cape. April 15.

**Mergus serrator.** RED-BREADED MERGANSER. Three birds, April 14, one definitely identified as serrator.

**Anas rubripes.** BLACK DUCK. Four.

**Charitonetta albeola.** BUFFLEHEAD. A female, probably a belated migrant, April 15th.

**Oidema americana.** AMERICAN SCOTER. Four, April 15.

**Oidema perspicillata.** SURF SCOTER. One, April 15.

**Ajaia ajaja.** ROSEATE SPOONBILL. One.

**Ardea herodias herodias.** GREAT BLUE HERON. Besides the 150 mentioned above, a few individuals were seen on Smith's Island and along the shore of the Cape Fear River.

**Herodias egretta.** EGRET. The twenty birds seen were in and about their nests and I assumed that the nests contained eggs or young though I was unable to verify my belief as my time was limited and the nests were difficult of access.

**Egretta candidissima candidissima.** SNOWY EGRET. Only five of these beautiful birds were seen. They were apparently not nesting yet. They may have been the vanguard of a larger flock.

**Hydranassa tricolor ruficollis.** LOUISIANA HERON. Many of these birds and those of the next species seen in Orton Lake on April 17, were carrying sticks, and some had completed nests. These were in small trees above the water, and a few of those near the row-boat were seen to contain four eggs. Lack of time prevented me from ascertaining to which species the eggs belonged as the birds kept their distance. The dates given by Chapman for the nesting of this species and the next for South Carolina are April 20, and 23, respectively.

**Florida caerulea.** LITTLE BLUE HERON. All the Little Blue Herons that I saw at Orton Lake were in the adult plumage, and all appeared to be nesting or building. Five of the nine seen at Smith's Island were in the white plumage.

**Nycticorax nycticorax naevius.** BLACK-CROWNED NIGHT HERON. A single bird in adult plumage flying over Orton Lake.

**Pisobia minutilla.** LEAST SANDPIPER. Three on the beach at Smith's Island, April 15.

**Pelidna alpina sakhalina.** RED-BACKED SANDPIPER. A flock of 20. A few showed traces of reddish in the back and of black on the belly. The rest were in winter plumage, April 15.

**Calidris leucophaea.** SANDERLING. Eight individuals, a few showing the beginnings of the summer plumage. April 15.

**Catoptrophorus semipalmatus semipalmatus.** WILLET. About 15 of these handsome but noisy birds were observed along the beach. April 15.

**Actitis macularia.** SPOTTED SANDPIPER, Three, April 15.

**Numenius hudsonicus.** HUDSONIAN CURLEW. Seven in all. April 15.

**Squatarola squatarola.** BLACK-BELLIED PLOVER. A single bird. April 15.

**Aegialitis semipalmata.** SEMIPALMATED PLOVER. One lone ring-neck was seen with large flocks of the next species.

**Ochthodromus wilsonius.** WILSON'S PLOVER. This was by far the commonest shorebird, and the chirping, unplover-like note was heard everywhere on the beaches. One hundred and fifty is a very modest estimate of the number seen. April 15.

**Arenaria interpres morinella.** RUDDY TURNSTONE. A flock of 18 showing various stages of plumage. April 15.

**Haematopus palliatus.** OYSTER CATCHER. These queer birds were quite common (50), and the small clumps of oysters on the mud flats showed evidence of their work. In most cases, the smaller mollusks on the outside of the clumps were the ones that were opened and the larger ones were left alone. The natives call them "Oyster Birds" which is a better name than Oyster Catcher, inasmuch as these "luscious bivalves" are not noted for agility. They, the birds, are said to be permanent residents. April 15.

**Colinus virginianus virginianus.** BOB-WHITE. Two coveys of about 12 each in Sunset Park near Wilmington.

[**Meleagris gallopavo silvestris.** WILD TURKEY. According to all accounts these birds are still found in numbers in the unsettled regions back of the Cape Fear River. I was not able to locate any.]

**Cathartes aura septentrionalis.** TURKEY VULTURE. I found this bird much commoner than the Black Vulture. About 18 of the present species were noted as compared with 4 of the next.

**Catharista urubu.** BLACK VULTURE.

**Haliaeetus leucocephalus leucocephalus.** BALD EAGLE. There were 2 Eagles over the Cape Fear River on April 14 and 2, possibly the same, on April 17. These were the only Buteonidae observed.

**Pandion haliaetus carolinensis.** OSPREY. Two pairs of birds with nests at Smith's Island, and about 15 birds at Orton Lake. The nests of the latter were on the tops of the tall stumps of cypress trees that rose here and there from the waters of the lake.

**Ceryle alcyon alcyon.** BELTED KINGFISHER. Two at Smith's Island.

**Dryobates pubescens** subsp. SOUTHERN (?) DOWNY WOODPECKER. One.

**Dryobates borealis.** RED COCKADED WOODPECKER. Commoner than the preceding, but the relative absence of woodpeckers was noticeable. I observed a total of 10 birds of four species during the week altho the region is generally wooded.

**Centurus carolinus.** RED-BELLIED WOODPECKER. Three together near Orton.

**Colaptes auratus**, subsp.? FLICKER. Only one bird seen.

**Antrostomus carolinensis**. CHUCK-WILL'S-WIDOW. A note heard repeatedly in the night of April 17-18 was undoubtedly that of this species. I did not see the bird nor had I heard the note before.

**Antrostomus vociferus vociferus**. WHIP-POOR-WILL. I flushed a whip-poor-will on April 17 at Southport.

**Chaetura pelagica**. CHIMNEY SWIFT. Two at Southport, April 17.

**Archilochus colubris**. RUBY-THROATED HUMMINGBIRD. One at Wilmington, April 14.

**Tyrannus tyrannus**. KINGBIRD. Ten at Southport, April 17. Eight at Orton, April 18.

**Myiarchus crinitus**. CRESTED FLYCATCHER. About as common as the preceding. This was one of the few passerine birds seen at Smith's Island. I was told, however, that the woods were frequently "full of small birds."

**Cyanocitta cristata cristata**. BLUE JAY. Seen only at Southport. (About 15.)

**Corvus brachyrhynchos brachyrhynchos**. CROW. This species was less common than the next, the ratio being about 1 to 4. Sixty-five crows of the two species were noted.

**Corvus ossifragus**. FISH CROW.

**Agelaius phoeniceus phoeniceus**. RED-WINGED BLACKBIRD. One seen at Smith's Island.

**Sturnella magna**, subsp.? MEADOWLARK. A flock of 10 near Orton.

**Icterus spurius**. ORCHARD ORIOLE. Three at Southport, April 17.

**Megaquisculus major major**. BOAT-TAILED GRACKLE. About 12 in the salt marshes at Smith's Island. The notes appeared to me more pleasing, or rather less discordant, than those of the Purple Grackle.

**Passer domesticus domesticus**. HOUSE SPARROW. In the towns.

**Passerculus sandwichensis savanna**. SAVANNAH SPARROW. One, on Smith's Island.

**Passerherbulus henslowi henslowi**. HENSLOW'S SPARROW. One, at Southport.

**Zonotrichia albicollis**. WHITE-THROATED SPARROW. About 50 in all.

**Spizella passerina passerina**. CHIPPING SPARROW. Saw only 2 at Wilmington.

**Spizella pusilla pusilla**. FIELD SPARROW. Only 4 seen. In fact, the absence of Fringillidae as compared with the number present at this season about New York was apparent. The notes were louder, less whistled, more bell-like than those about New York.

**Pipilo erythrophthalmus erythrophthalmus**. TOWHEE. A few.

**Cardinalis cardinalis cardinalis**. CARDINAL. Twelve.

**Passerina cyanea**. INDIGO BUNTING. A male in transitional plumage with a flock of migrating warblers, April 14.



**Piranga erythromelas.** SCARLET Tanager. Wilmington, April 14. One.

**Piranga rubra rubra.** SUMMER Tanager. Three in song, April 17. Southport. Three at Orton, April 18.

**Progne subis subis.** PURPLE MARTIN. A colony in Southport.

**Hirundo erythrogastra.** BARN SWALLOW. Six.

**Iridoprocne bicolor.** TREE SWALLOW. Three.

**Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW. Two.

**Vireosylva olivacea.** RED-EYED VIREO. Not as common as the White-eyed.

**Lanivireo solitarius solitarius.** BLUE-HEADED VIREO. Two.

**Vireo griseus griseus.** WHITE-EYED VIREO. Generally distributed throughout this section. About 20 noted.

**Protonotaria citrea.** PROTHONOTARY WARBLER. I had barely recovered from the thrill of my first Egret when I saw one of these gems on the swollen base of a cypress tree, not 10 feet from the boat. I still think that it was the most beautiful bird I have ever seen. Six in all were noted, in swampy sections.

**Compsothlypis americana americana.** PARULA WARBLER. These birds and probably also *C. a. usneae* were common wherever there was "Spanish Moss." I saw about 50.

**Dendroica aestiva aestiva.** YELLOW WARBLER. Wilmington, April 14. One.

**Dendroica coronata.** MYRTLE WARBLER. Ten, Wilmington, April 14; two, Southport, April 17; eight, Orton, April 18; ten, Wilmington, April 19.

**Dendroica dominica dominica.** YELLOW-THROATED WARBLER. These were somewhat commoner than the Prothonotary Warblers and more generally distributed.

**Dendroica virens.** BLACK-THROATED GREEN WARBLER. Song heard at Orton Lake.

**Dendroica vigorsii.** PINE WARBLER. Fairly common in the long-leaf pine. Twenty-eight.

**Dendroica discolor.** PRAIRIE WARBLER. Occurred with the preceding but not so common.

**Geothlypis trichas**, subsp.? YELLOW-THROAT. One at Wilmington, April 19.

**Mimus polyglottos polyglottos.** MOCKING BIRD. Not nearly as common as I had anticipated. I saw not more than 25 individuals.

**Dumetella carolinensis.** CATBIRD. Two.

**Toxostoma rufum.** BROWN THRASHER. Two.

**Thryothorus ludovicianus ludovicianus.** CAROLINA WREN. Eight.

**Troglodytes aedon aedon.** HOUSE WREN. One, April 18.

**Sitta canadensis.** RED-BREASTED NUTHATCH. One bird at Wilmington, April 14, an unexpected find.

**Sitta pusilla.** BROWN-HEADED NUTHATCH. In company with the preceding and with Red-cockaded Woodpeckers. Five.

**Baeolophus bicolor.** TUFTED TITMOUSE. Fifteen.

**Penthestes carolinensis carolinensis.** CAROLINA CHICKADEE. Twenty.

**Regulus calendula calendula.** RUBY-CROWNED KINGLET. A singing male at Orton, April 18.

**Polioptila caerulea caerulea.** BLUE-GRAY GNATCATCHER. Five.

**Hylocichla mustelina.** WOOD THRUSH. Song heard at Wilmington, April 19.

**Sialia sialis sialis.** BLUEBIRD. Three.

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## MIGRATION AND PHYSICAL PROPORTIONS. A PRELIMINARY STUDY.

BY C. K. AVERILL

IT is a matter of common observation that birds most capable of long sustained flights are long winged. Such are the swallows and swifts on land and the terns, plovers and sandpipers along the shore.

A bird flying 35 miles per hour passes through the air at the rate of 51 feet per second and the form of the tail evidently has much to do with the resistance offered by the air. It is evident that the stream lines that pass under the body of the bird will converge at the rear of the body, striking against the tail and causing undue pressure. In birds of superior power of flight—terns, swallows, swifts, gulls, kites, the tail is either forked or it is short, in either case there is little tail beyond the end of the under tail coverts in the median line.\* It is the mechanical function of the under tail coverts to fill in the angular space where the tail joins the body where without the coverts an area of reduced pressure would be formed increasing the resistance. The tail of the barn swallow,

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\*In the soaring hawk or eagle the large broad tail forms one of the three planes which support the body.